

REMARKS/ARGUMENTS

Independent claims 25 and 59 have been amended to recite the chemical name for RDX. No new matter has been added.

The Office Action mailed February 25, 2004, has been received and reviewed. Claims 25-27, 29-33, and 59 are currently pending in the application. Claims 25-27 and 29-33 are allowed. Applicant notes that although the Office Action Summary lists claim 28 as being "pending" and "allowed," claim 28 was canceled by the Amendment filed on November 25, 2003. Claim 59 stands rejected. Applicant has amended claims 25 and 59 and respectfully requests reconsideration of the application as proposed to be amended herein.

Information Disclosure Statement

Applicant notes the filing of an Information Disclosure Statement on November 25, 2003, and notes that the entry on PTO-1449 for the cited International Search Report was not initialed by the Examiner. The Examiner states that the International Search Report is not properly cited or proper scientific literature because it is not prior art and has lined through this entry on PTO-1449. Office Action of February 25, 2004, p. 4. However, "each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability." See 37 C.F.R. 1.56 and M.P.E.P. § 2001. As such, the individual's duty to disclose is not limited to disclosing prior art. Individuals "have a duty to bring to the attention of the Office any material prior art or other information cited or brought to their attention in any related foreign application", which "includes prior art cited in search reports of a foreign patent office in a counterpart application." See M.P.E.P. §§ 2001 and 2001.06(a).

Applicant respectfully requests that the cited International Search Report on the PTO-1449 be made of record herein. As such, Applicant has enclosed an additional copy of PTO-1449 to be initialed and returned by the Examiner.

35 U.S.C. § 103(a) Obviousness Rejections

Obviousness Rejection Based on U.S. Patent No. 6,206,988 B1 to Bazaki, in View of U.S. Patent No. 5,690,868 to Strauss *et al.*, U.S. Patent No. 5,467,714 to Lund *et al.*, U.S. Patent No. 6,214,137 B1 to Lee *et al.*, and U.S. Patent No. 4,211,169 to Brothers

Claim 59 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,206,988 B1 to Bazaki (“Bazaki”) in view of U.S. Patent No. 5,690,868 to Strauss *et al.* (“Strauss”), U.S. Patent No. 5,467,714 to Lund *et al.* (“Lund”), U.S. Patent No. 6,214,137 B1 to Lee *et al.* (“Lee”), and U.S. Patent No. 4,211,169 to Brothers (“Brothers”). Applicant respectfully traverses this rejection, as hereinafter set forth.

M.P.E.P. 706.02(j) sets forth the standard for a rejection under 35 U.S.C. § 103(a):

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant’s disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991).

The obviousness rejection of claim 59 is improper because the cited references do not teach or suggest all the claim limitations and do not provide a motivation to combine to produce the claimed invention.

Bazaki discloses an explosive composition having a hexanitrohexaazaisowurtzitane composition that includes hexanitrohexaazaisowurtzitane, polynitropolyacetylhexaazaisowurtzitanes, and one or more oxaisowurtzitane compounds. The content of the hexanitrohexaazaisowurtzitane composition in the explosive composition ranges from 55-95% by weight. If the hexanitrohexaazaisowurtzitane composition is present at less than 55%, a uniform dispersion of the explosive composition is not obtained. If the hexanitrohexaazaisowurtzitane composition is present at more than 95%, the explosive composition can not be molded into a desired shape.

Strauss discloses a multi-layer propellant having a layer of a slow burning propellant and a layer of a fast burning propellant. Formulations of the slow burning and the fast burning propellants are formed separately into layers and are bonded together into a desired shape. Binders in each of the formulations allow the layers to bond together. The slow burning propellant includes RDX and the fast burning propellant includes 2,4,6,8,10,12-hexanitro-2,4,6,8,10,12-hexaazatetracyclo[5.5.0.0^{5,9}.0^{3,11}]-dodecane (CL-20).

Lund discloses an explosive composition that includes an acceptor phase and an explosive phase. The acceptor phase contains a halogenated polymer and a reactive metal and the explosive phase includes a nonmetallized explosive, such as CL-20, HMX, RDX, AND, TNAZ, or PETN. A portion of the explosive phase surrounds the acceptor phase.

Lee discloses a CL-20 composition including 85-95% CL-20 and 5-15% of a binder system having at least one non-energetic binder and at least one energetic plasticizer.

Brothers discloses an explosive flechette launch system that is filled with Composition C-4. The Examiner states that Brothers "is cited only to teach the precise formulation of the notoriously well known C-4 explosive." Office Action of February 25, 2004, p. 2-3.

The cited references do not teach or suggest all of the claim limitations

None of the cited references teaches or suggests an explosive composition that includes the percentages of each of the ingredients recited in claim 59. Specifically, the cited references do not teach or suggest an explosive composition that includes about 45 weight percent to about 69 weight percent RDX, about 0.5 weight percent to about 2.25 weight percent polyisobutylene, about 15 weight percent to about 30 weight percent CL-20, and about 15 weight percent to about 25 weight percent BDNPA/F, as recited in claim 59.

While Strauss discloses a propellant composition having RDX, CL-20, and BDNPA/F, Strauss is silent regarding the amounts of the ingredients in the propellant composition. Therefore, Strauss does not teach or suggest that each of the ingredients is present at the percentages recited in claim 59. Similarly, in Bazaki, there is no teaching or suggestion that the RDX and CL-20 are present at the recited percentage ranges. Bazaki also does not disclose using BDNPA/F in its composition and, therefore, does not teach or suggest that the BDNPA/F is

present from about 15 weight percent to about 25 weight percent. While Lee discloses a composition including CL-20 and BDNPA/F, there is no teaching or suggestion that the composition also includes RDX. Therefore, Lee does not teach or suggest that the RDX is present from about 45 weight percent to about 69 weight percent. In addition, Lee does not teach or suggest that the CL-20 is present from about 15 weight percent to about 30 weight percent or that the BDNPA/F is present from about 15 weight percent to about 25 weight percent.

Lund also does not disclose the claimed percentages of the ingredients in the explosive composition of claim 59. Lund discloses that its explosive composition includes from 70-92% CL-20, which is significantly higher than the percentage of CL-20 recited in claim 59. Lund also discloses that its explosive composition includes from 70-92% RDX, which is higher than the percentage of RDX recited in claim 59. Brothers also does not disclose the recited percentages of the ingredients in the explosive composition because, as acknowledged by the Examiner, this reference “is cited only to teach the precise formulation of the notoriously well known C-4 explosive.” *Id.* at p. 2. As such, the cited references do not teach or suggest all the limitations of the claimed invention.

The Examiner states that “it would have been obvious to use a thin layer of the notoriously well known C-4 (PBX) explosive which is essentially RDX with about 10% binder ingredients . . . as the slow burn RDX layer [in Strauss], along with the preferred CL-20 fast burn layers [in Strauss]. Such would comprise these claims as broadly claimed, including with a ‘comprising’ claim scope.” *Id.* The Examiner also states that “it would have been obvious to use a mixture of types of explosive particles, RDX plus CL-20, to obtain the desired properties, as is notoriously well known and taught in Bazaki.” *Id.* However, even assuming *arguendo* that the Examiner’s statement is true, the claimed invention would not be produced if the cited references were combined because the resulting explosive composition would not include the recited amounts of each of the ingredients. Furthermore, contrary to the Examiner’s statement, nothing in Bazaki provides any teaching or suggestion to use a mixture of different types of explosives to improve shapeability of its explosive composition. The Examiner states that “[t]his is further shown in Lee et al. for a teaching of a CL-20 composition.” *Id.* However, it is unclear what the Examiner refers to because Lee does not provide a teaching to use a mixture of explosive types.

The Examiner states that “[v]ariation of notoriously well known ingredients and amounts would have been obvious to one of ordinary skill in the art. It is well settled that optimizing a result effective variable is well within the expected ability of a person or [sic] ordinary skill in the subject art.” *Id.* at p. 3. However, it is also well settled that “a particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation.” M.P.E.P. § 2144.05. The Examiner has provided nothing to support the proposition that varying the ingredients and the ingredient amounts in the explosive compositions of the cited references would achieve the result disclosed in the as-filed specification, specifically that the resulting explosive composition would have improved shapeability. As such, varying the ingredients and the ingredient amounts in the explosive composition is not a result-effective variable and it is improper for the Examiner to argue that it would be obvious to optimize this variable to produce the claimed invention.

The Examiner also states that “where the ingredients are well known and combined for their known properties, the combination is obvious absent unexpected results.” Office Action of February 25, 2004, p. 3. The Examiner further states that “[t]he respective properties of CL-20 and RDX (C-4) compositions are well known and shown generally in the references, such as by the taught burning speed, density, etc.” *Id.* at p. 3. However, the cited references do not teach or suggest that any of the ingredients in their respective explosive compositions provide increased shapeability at room temperature to the explosive composition. In contrast, the explosive composition of the present invention has a low viscosity and good shapeability at room temperature. See the as-filed specification, paragraph [0006]. These improved properties are achieved without adversely affecting the energetic performance of the explosive composition. *Id.* In contrast, C-4 has a low deformability at room temperature and poor low temperature properties. *Id.* at paragraph [0004]. Since the explosive composition of the present invention is more shapeable than C-4, the explosive composition of the present invention is easily loaded or injected into a case of an explosive device. *Id.* at paragraph [0041]. As such, the claimed invention provides unexpected results over the cited references. Therefore, although some properties of CL-20 and RDX are disclosed in the cited references, nothing in the cited references

teaches or suggests that any of the ingredients would provide increased shapeability at room temperature to the explosive composition.

The cited references do not provide a motivation to combine

The cited references also do not provide a motivation to combine to produce the claimed invention. The Examiner states that “it is prima facie obvious to combine two compositions, (Here C-4 and the Lee et al. CL-20 composition, e.g., each taught for the same purpose, to yield a third composition for that very purpose.” Office Action of February 25, 2004, p. 3. The Examiner further states that “[t]he motivation to combine is found in the references, for the expected improvement in properties from substituting some CL-20 for the prior explosive ingredient either mixed together or combined in layers, and in the case law that reflects sound engineering and common sense as to averaging properties.” *Id.* at 3-4. However, the C-4 composition and the CL-20 composition of Lee are not taught for the same purpose. While both are explosive compositions, the properties of the compositions are different and each is suited for a different application. Furthermore, contrary to the Examiner’s assertions, the explosive composition of the present invention is not taught for the same purpose. The explosive composition of the present invention has a low viscosity and is more shapeable than C-4 and the CL-20 composition of Lee.

In addition, Bazaki teaches away from combining the cited references to produce an explosive composition that includes from “about 15 weight percent to about 30 weight percent” CL-20 because Bazaki discloses that if its hexanitrohexaazaisowurtzitane composition is present at less than 55%, it is not possible to obtain a uniform dispersion of the explosive composition. As such, one of ordinary skill in the art would not be motivated to combine the cited references to produce the explosive composition of the present invention, which includes from about 15 weight percent to about 30 weight percent CL-20. Furthermore, there can be no motivation to make the proposed modification if the “proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose.” M.P.E.P. § 2143.01. Since combining the cited references to produce an explosive composition having from “about 15 weight percent to about 30 weight percent” CL-20 would render Bazaki unsatisfactory for its

intended purpose, there is no motivation to combine to produce the claimed invention. In addition, nothing in the cited references provides any motivation to produce an explosive composition that has a lower viscosity and is more shapeable than C-4.

ENTRY OF AMENDMENTS

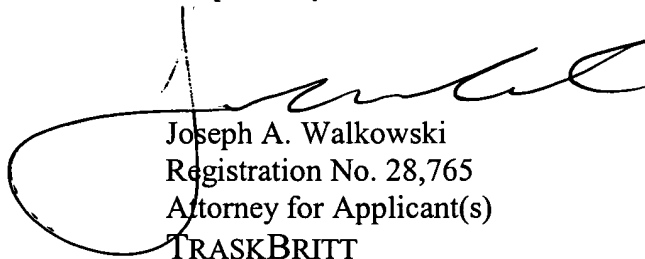
The amendments to claims 25 and 59 above should be entered by the Examiner because the amendments are supported by the as-filed specification and drawings and do not add new matter to the application.

Support for the amendments is found at paragraph [0003] of the as-filed specification.

CONCLUSION

Claims 25-27, 29-33, and 59 are believed to be in condition for allowance and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, he is respectfully invited to contact Applicant's undersigned attorney.

Respectfully submitted,



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